

4K88-13

A REGULATORY RECOMMENDATION PERTAINING TO A CLOSED-WATERS  
AREA OFF DOG SALMON CREEK, ALITAK BAY DISTRICT,  
KODIAK MANAGEMENT AREA

A Report to the Alaska Board of Fisheries  
Anchorage, Alaska

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There are two proposals, #9 and #10, before the Board of Fisheries pertaining to the designation of a specific salmon schooling area off the mouth of Dog Salmon Creek, the outlet stream of Frazer Lake. Either proposal if adopted would reallocate the Frazer Lake sockeye return by closing some traditional fishing sites within lower Olga Bay. Neither proposal, however, would enhance or change the harvest strategy of managing Moser Bay, lower Olga Bay, or the Cape Alitak Section simultaneously for Frazer early run sockeye salmon.

In the Alitak Bay District there are principally two early run sockeye stocks, the Upper Station stock and the Frazer Lake stock (Figure 1)(Manthey et al. 1986). Both have the same migration timing which extends from early June to mid-July. The Frazer Lake stock is the dominant stock having nearly four times the potential run level as the Upper Station stock (Figure 2). Because the Frazer Lake run is dominant and because fishing in both Moser Bay and lower Olga Bay is closed to mobile gear, the Cape Alitak and the Moser-Olga Bay Sections are simultaneously managed for the Frazer Lake run from early June through mid-July. Although Upper Station early run sockeye salmon are not specifically managed in the traditional fishing areas of the Alitak Bay District, the run is afforded some protection by the traditional closed waters of upper Olga Bay which are only open when Upper Station has a projected escapement surplus. A problem with the present management strategy occurs when the Upper Station early run is especially weak and the Frazer Lake run is especially strong. In those instances the Upper Station escapement goal may not be reached because of extra fishing time needed in lower Olga Bay, Moser Bay, and in the Cape Alitak Section to harvest the surplus Frazer Lake fish. Unfortunately there is no solution to the problem due to the traditional fishing patterns in the district and the common migration timing of the two early run stocks.

Within lower Olga Bay, Frazer Lake sockeye salmon are protected in a closed-waters area off the mouth of Dog Salmon Creek, the outlet stream of Frazer Lake (Figure 1)(ADF&G 1987). The closed-waters area is north of a line extending southeasterly from a point approximately 1/2 mile west from the west bank of Dog Salmon Creek to a point on Moser Peninsula approximately two miles south-southwest of Horse Marine Lagoon. In concert with the existing

management plan, the amount of close-waters area is sufficient to protect sockeye salmon staging off the mouth of Dog Salmon Creek. An expansion of the closed-waters area would not change the rationale behind managing the Alitak Bay District, from June through mid-July, for the dominant sockeye run. This is supported by tagging work in lower Olga Bay and Moser Bay (ADF&G 1984).

The tagging investigation referenced involved the mark and release of seine-caught sockeye salmon at six general locations within lower Olga and Moser Bays in 1984 (Figure 3). The purpose of the program was to obtain information on the migrational characteristics of early run Frazer and Upper Station sockeye salmon in lower Olga Bay and Moser Bays. In the study 1,113 sockeye were tagged over a 11-day period from 20 June to 30 June 1984. A total of 578 tags (52%) were recovered, and 93% of the tag recoveries were at the weirs on Frazer and Upper Station. During the tag recovery period, which extended from 21 June through 28 July, there was no commercial fishing in either Olga Bay or Moser Bay. By adjusting (weighting) the tag data to account for the differential run strength in 1984 between the Frazer Lake (Dog Salmon) and Upper Station returns, we are able to determine the catch composition of these stocks for six general areas within lower Olga and Moser Bays at different run strength scenarios. For example when the Frazer Lake and Upper Station early run stocks are equally abundant, the Moser Bay catch will be slightly selective toward Upper Station fish, while the lower Olga Bay catch will be moderately selective toward Frazer Lake fish (Figure 4). When Frazer Lake and Upper Station stocks are at their respective production potentials, the catch in both bays will be highly selective toward Frazer Lake fish (Figure 5). In 1987, when the Frazer sockeye run was 60% lower than the Upper Station sockeye run (57,600 versus 145,100), the lower Olga Bay catch was approximately 35% Frazer fish and the Moser Bay catch was 24% Frazer fish (Figure 6). In 1985 when the Frazer return was nearly 20 times higher than the Upper Station run (637,900 versus 33,800), the lower Olga Bay catch was 90% Frazer fish and the Moser Bay catch was 92% Frazer fish (Figure 6).

The tagging results indicate that the traditional fishing areas in lower Olga and Moser Bays are selective toward the dominant early run stock. Because

the Frazer Lake run has the highest run potential, all traditional fishing areas in lower Olga Bay and Moser Bay should be managed concurrently for the Frazer Lake run. The staff recommends status quo management which includes retaining the present closed-waters area off the mouth of Dog Salmon Creek. An expansion of the closed-waters area off Dog Salmon Creek would only result in a reallocation of the Frazer Lake run to fishermen operating in Moser Bay, the Cape Alitak Section, and the remaining open areas of lower Olga Bay.

## LITERATURE CITED

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- \_\_\_\_\_. 1984. Moser-Olga Bay fisheries and tagging report. Alaska Department of Fish and Game, Division of Commercial Fisheries, Westward Region Region Report (unpublished), Kodiak.
- Manthey, K., D. Prokopowich, and J. Strickert. 1986. 1985 Kodiak area annual finfish management report. Alaska Department of Fish and Game, Division of Commercial Fisheries, Westward Region Region Report (unpublished), Kodiak.

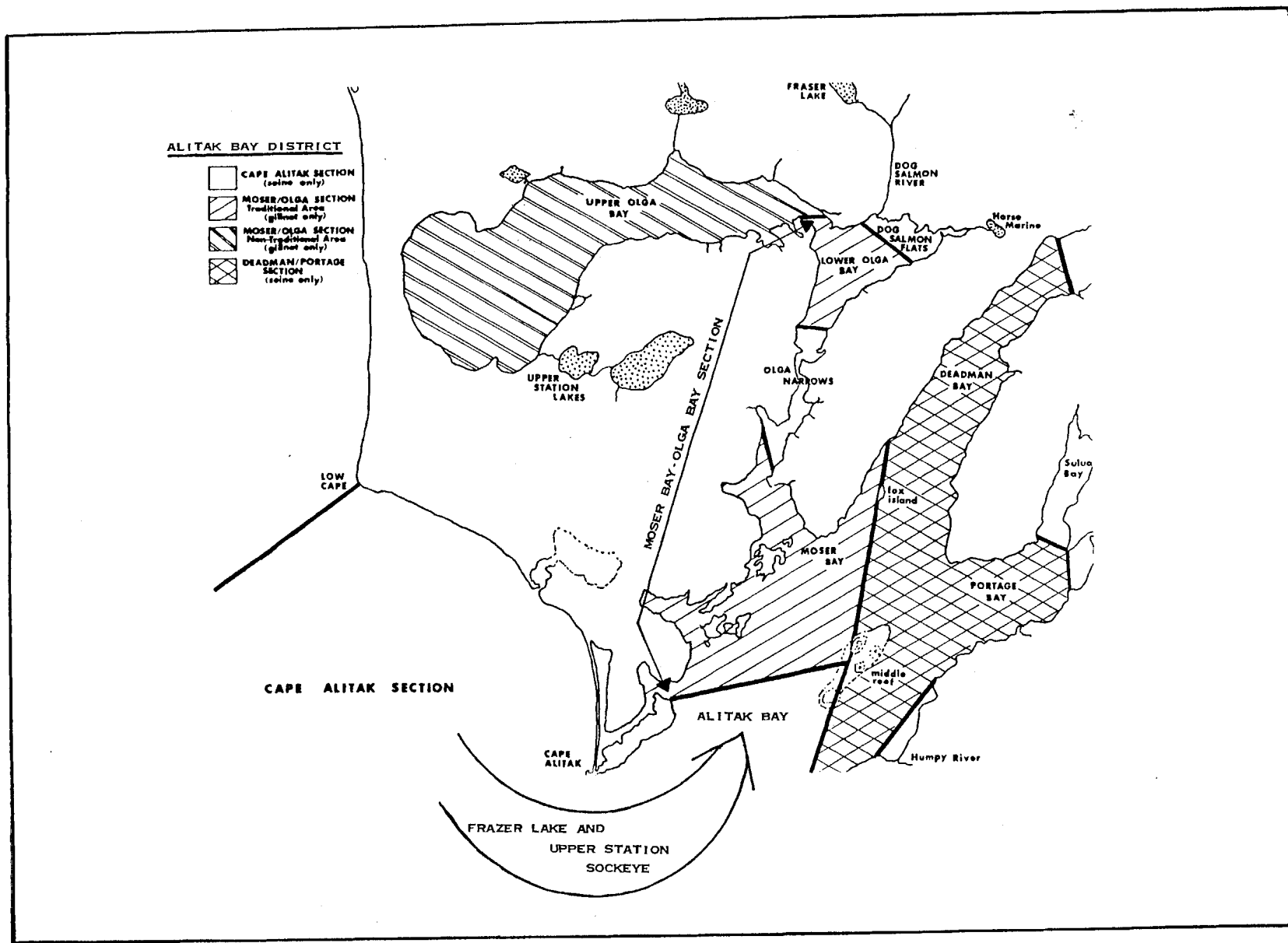


Figure 1. Map of the Alitak Bay District with the fishing areas and major early run sockeye stocks defined.

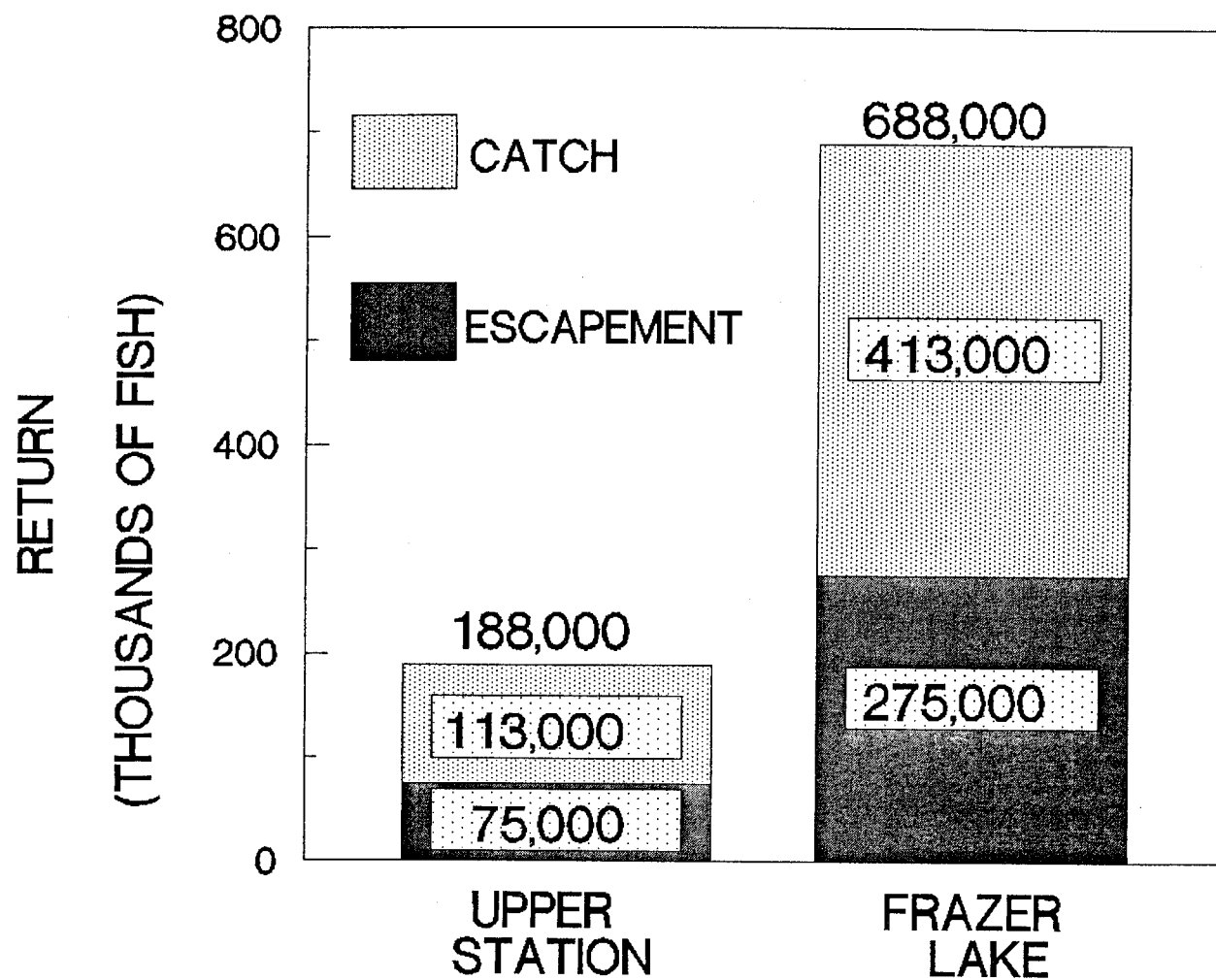


Figure 2. Early run sockeye return potential for Upper Station and Frazer Lake based on a 2.5:1 return to spawner ratio.

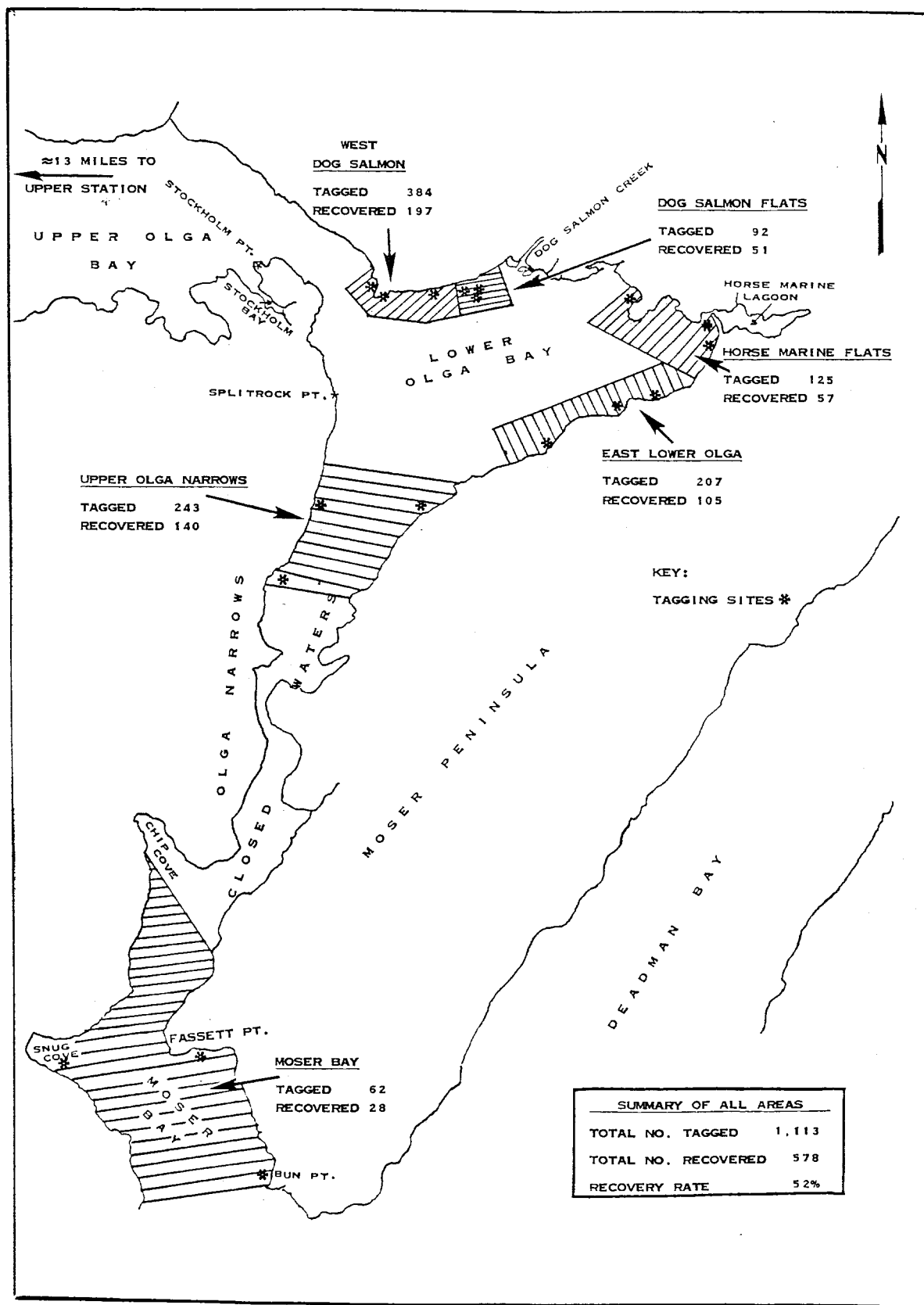


Figure 3. Sockeye salmon tagging areas in lower Olga and Moser Bays, 1984.



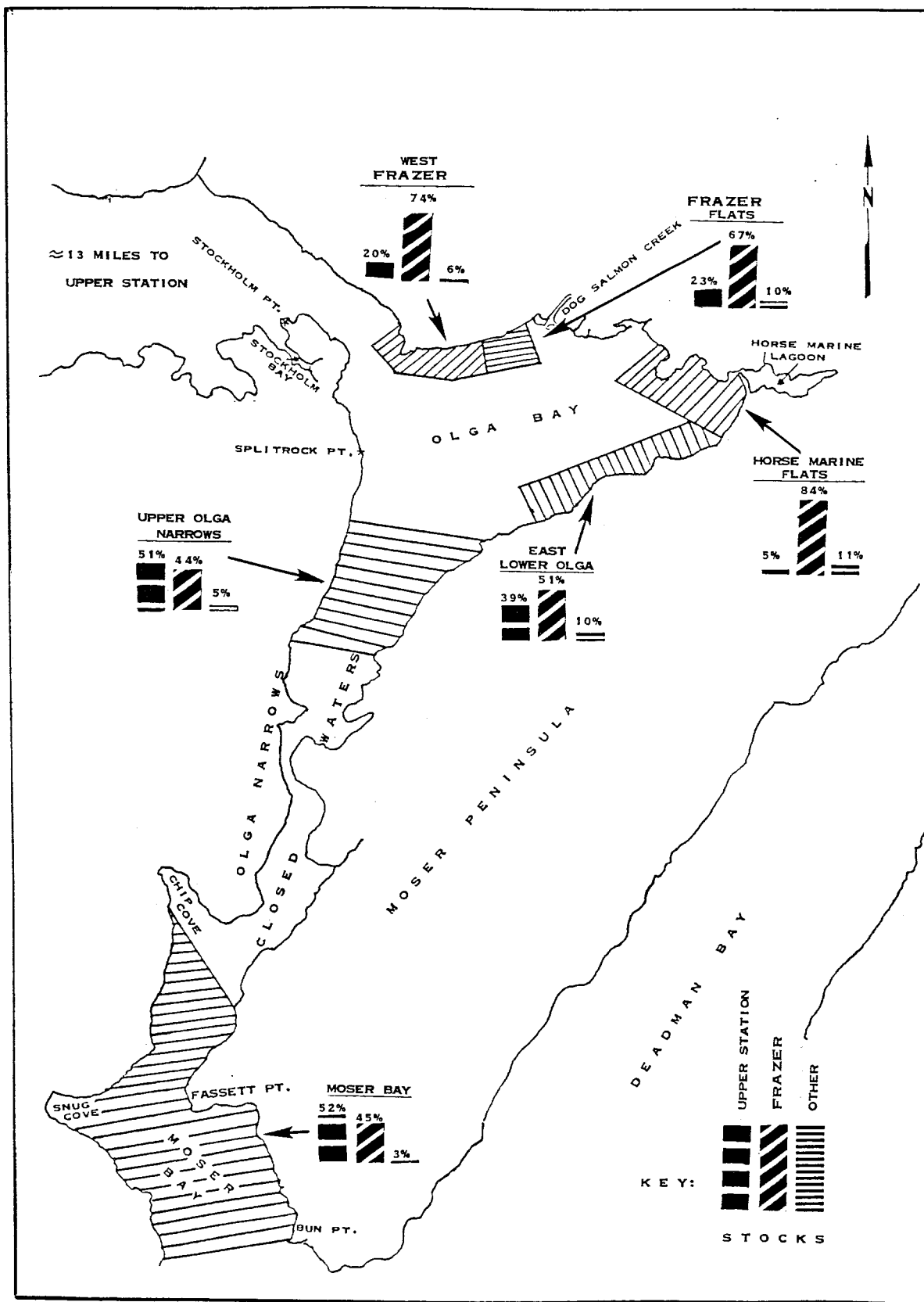


Figure 4. Catch composition of Upper Station and Frazer Lake early run sockeye salmon in sub-areas of lower Olga Bay and Moser Bay when run strengths are equal (based on 1984 ADF&G tagging study).

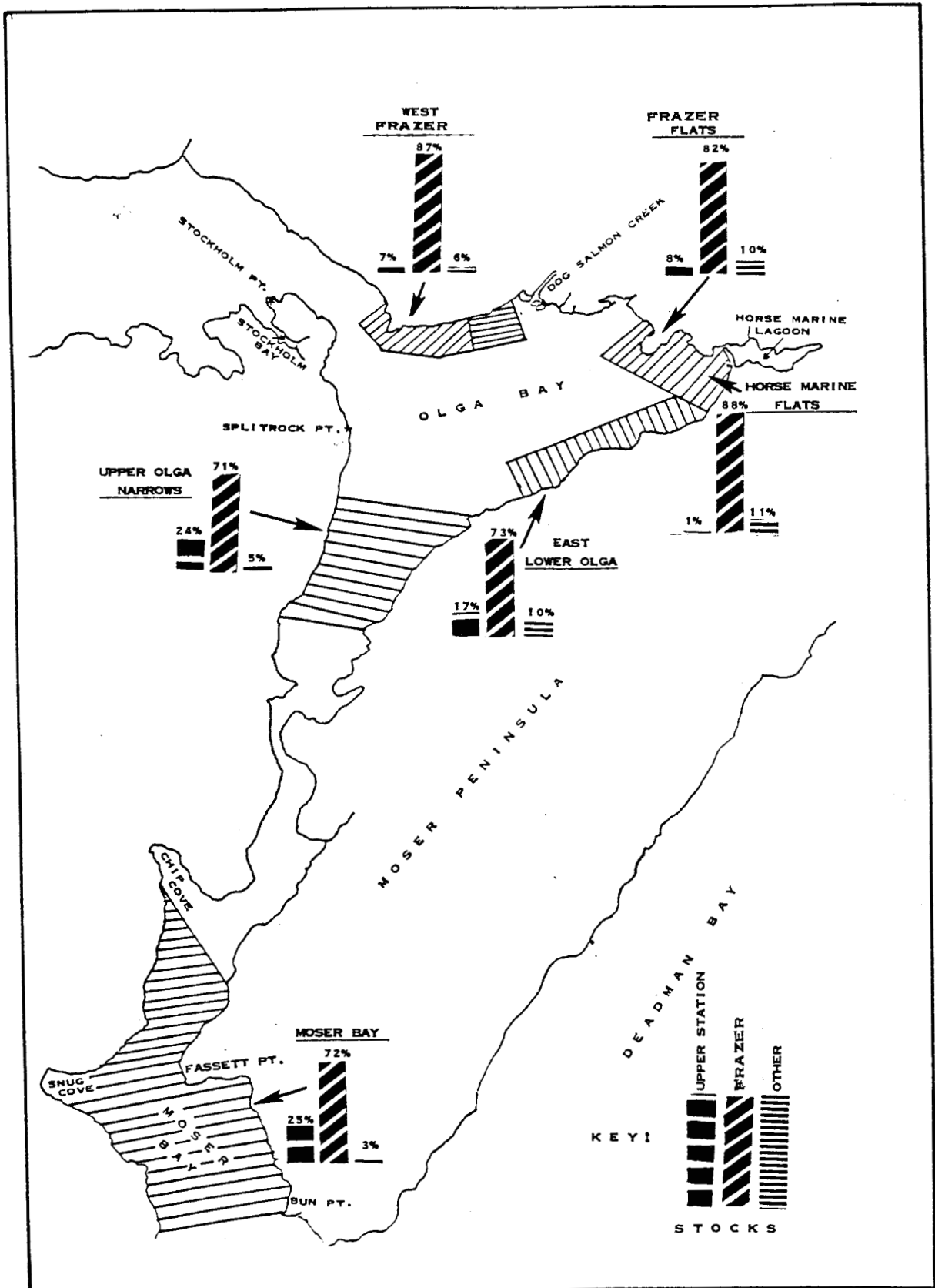


Figure 5. Catch composition of Upper Station and Frazer Lake early run sockeye salmon in sub-areas of lower Olga Bay and Moser Bay when returns are proportionate to escapement goals (0.3:1) (based on 1984 ADF&G tagging study).

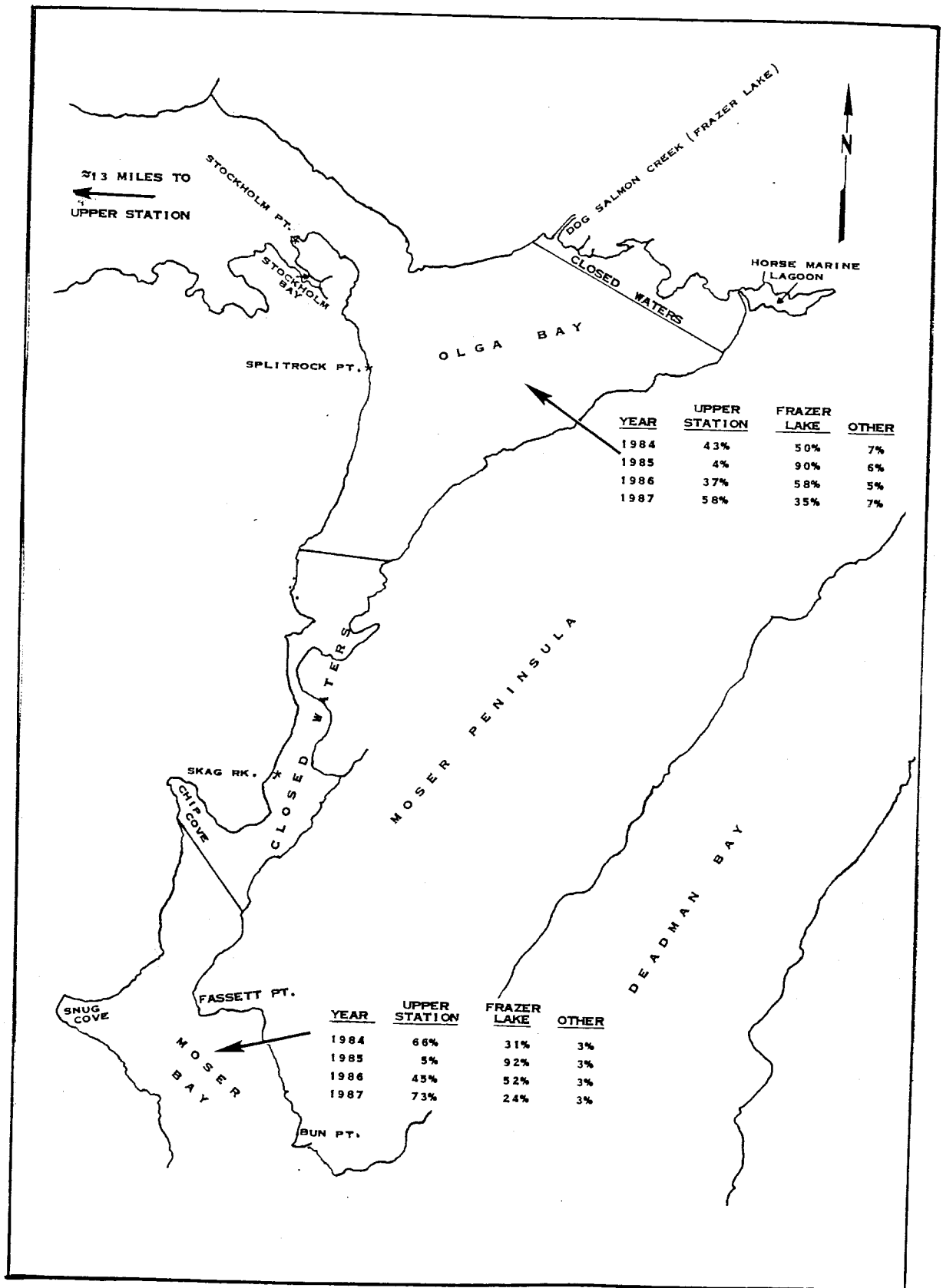


Figure 6. Catch composition of Upper Station and Frazer Lake early run sockeye salmon in lower Olga Bay and Moser Bay, 1984 through 1987.

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